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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/411,194 | 10/01/1999 | JOEL S. EMER | DEC99-55(PD9 | 7962 |

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[REDACTED] EXAMINER

KIM, KENNETH S

| ART UNIT | PAPER NUMBER |
|----------|--------------|
| 2183 | 78 |

DATE MAILED: 05/03/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|------------------------|---------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 09/411,194 | EMER ET AL. |
| | Examiner | Art Unit |
| | Kenneth S KIM | 2183 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 15 May 2000.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-57 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-10,21-36 and 40-56 is/are rejected.
- 7) Claim(s) 11-20,37-39 and 57 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ . |
| 2) <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5 . | 6) <input type="checkbox"/> Other: _____ . |

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1. Claims 1-57 are presented for examination.

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 22, 24, 26, and 45 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

(a) Claim 22, there appears to be a typographical error in the identification of the thread of control of which the instructions are fetched.

(b) Claims 24, 26, and 45, "the program" lacks antecedent basis.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-5, 7-10, 22-26, 30-36, 40, 42-47, 49-53, 55, and 56 are rejected under 35 U.S.C. 102(b) as being anticipated by Kimura et al, U.S. Patent No. 5,546,593.

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Kimura et al teaches the invention as claimed in claim 1 including a method for temporarily halting execution of a thread of control while the thread of control is waiting for an event to occur, comprising :

- (a) arming an event monitor by identifying at least one event to be monitored (col. 16, lines 1 and 66),
- (b) requesting that the thread of control be halted until any such identified event is observed by the event monitor (col. 12, line 16; col. 13, line 14),
- (c) if execution of the thread of control had been halted, monitoring by the event monitor for an identified event (col. 16, line 1),
- (d) resuming execution of the thread of control subsequent to observation of an identified event by the event monitor (col. 16, line 47), and further teaches as in claims 2-5, 8-10, 22-26, 30, 55, and 56,
- (e) halting execution of the thread of control after requesting that the thread of control is halted if the identified event has not occurred since the arming (col. 12, line 16) – claim 2,
- (f) wherein the event to be monitored comprises at least one memory location modification of change of value in access state (col. 16, line 2) – claims 3-5, 7, and 8-10.
- (g) while the thread of control is halted flushing the pipeline, fetching from another thread of control into buffer and allowing the fetched instructions to propagate into the pipeline (col. 16, line 47) – claims 22 and 23,

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- (h) wherein the environment is multithreaded, simultaneous multithreaded, or multiprocessor environment (col. 1, line 13) – claims 24-26,
- (i) halting execution of the thread of control allows other executing thread of control to utilize available resources.(col. 3, line 25) – claim 30, and
- (j) wherein the another thread of control is executing in a different CPU or TPU (col. 1, line 13) – claims 55 and 56.

The system claims 31-36 and 40, 42-47, the system claim 49, and the circuit claim 50-53 are equivalently rejected based on the same reason.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 6, 21, 27-29, 41, 48, and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura et al, U.S. Patent No. 5,546,593 in view of Frank et al, U.S. Patent No. 5,790,851 cited by the applicant.

Kimura et al teaches the invention substantially as claimed in claims 6 and 27 as set forth in paragraph 5 above, however, does not expressly state that the event comprises a change in the access state of a memory location from shared to exclusive, that the event is caused by another thread of control, that a timer is set to a

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predetermined time for resuming execution, or that the power is saved during the halted period.

Frank et al teaches the detection of an event comprising a change in access state of a memory location from shared to exclusive (col. 1, line 58), the event caused by another thread of control (col. 11, line 29), and the use of a timer set to a predetermined time for resuming execution (col. 10, lines 7-28).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made that the teachings of both references are directed to the method of reducing the time spent in locked state to improve processing resource utilization, and the person would have been motivated to combine the teachings to enhance versatility.

It would also have been obvious that the power is saved during the time the thread of control is halted.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

McLain Jr. et al taught a method of performing hybrid preemptive and cooperating multi-tasking in a computer system.

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Bitar et al taught a method of resuming preempted thread.

Kosche et al taught a method of preemption control of process entities.

Wolf taught a method of resuming threads upon event detection.

10. Claims 11-20, 37-39, and 57 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. Applicant is requested to amend all directly linkable hyperlink or other forms of browser executable code in the specification (e.g., page 4) to be expressed in other suitable form.. See MPEP 608.01(p), paragraph I regarding improper incorporation by reference.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth S KIM whose telephone number is (703) 305-9693. The examiner can normally be reached on M-F (8:30-17:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Chan can be reached on (703) 305-9712. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7239 for regular communications and (703) 746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

April 30, 2002

KENNETH S. KIM
PRIMARY EXAMINER